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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,723	02/19/2004	Hiroshi Saitoh	X2007.0150	3284

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EXAMINER

COLEMAN, WILLIAM D

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/780,723

Applicant(s)

SAITOH, HIROSHI

Examiner

W. David Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17, 18 and 21 is/are rejected.
- 7) ☒ Claim(s) 19, 20 and 22-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/04; 10/05/ 12/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II invention, claims 17-24 in the reply filed on September 12, 2005 is acknowledged.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Drawings

3. Figure 17, 18, 19A-19D should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

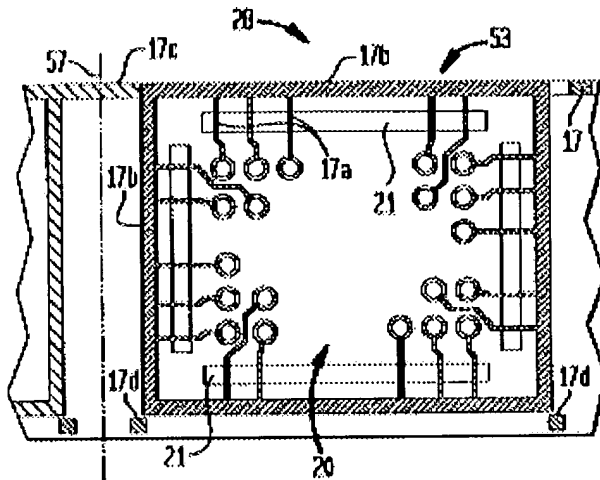
4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

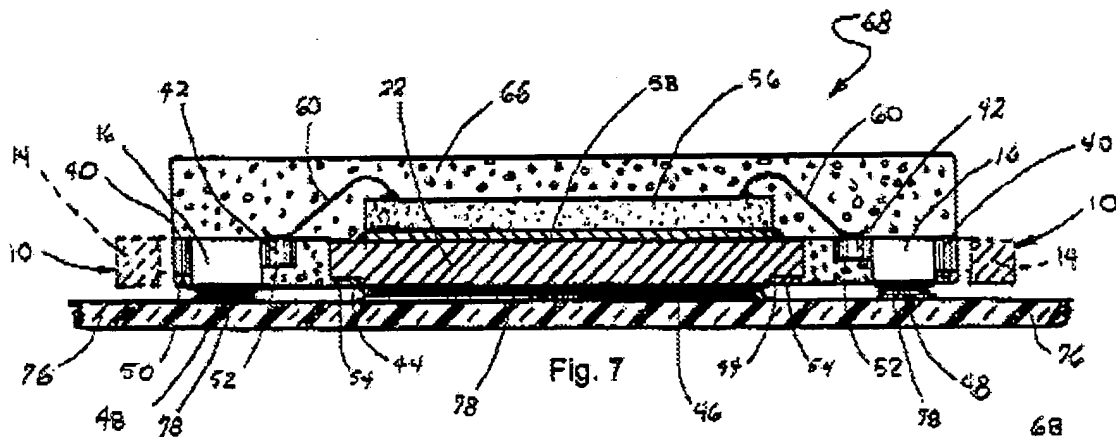
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5. Claims 17, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Millet U.S. Patent 6,083,837 in view of Perez et al., U.S. Patent 6,847,103 B1.

Millet in view of Perez discloses a semiconductor device substantially as claimed. See FIGS. 1A-8B of Millet and FIGS. 1-9 of Perez where the following limitations are disclosed.



The Millet disclosure FIG. 1G. showing the lead frame.



The Perez disclosure showing resin 66.

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6. Pertaining to claim 17, Millet discloses a manufacturing method for a semiconductor device comprising the steps of:

pressing a metal material 17 to produce a lead frame 28 that comprises a plurality of outer frames

17c and 17b, a plurality of electrode supports 17a connected with the plurality of outer frames,

and a plurality of electrodes 19 respectively supported by the plurality of electrode supports;

drawing the plurality of electrode supports to be lowered in position compared

with surfaces of the electrodes and at least a part of the outer frames;

forming a lead frame assembly in which a semiconductor chip (not shown) is electrically

connected with the plurality of electrodes. However, Millet fails to disclose

enclosing the lead frame assembly within a resin package in such a way that the surfaces of the

electrodes are exposed to a surface of the resin package; and

cutting at least a prescribed part of the electrode supports so as to separate the plurality of

electrodes from each other. Perez discloses enclosing the lead frame assembly within a resin

package in such a way that the surfaces of the electrodes are exposed to a surface of the resin

package; and

cutting at least a prescribed part of the electrode supports so as to separate the plurality of

electrodes from each other. In view of Perez, it would have been obvious to one of ordinary skill

in the art to incorporate a resin into the semiconductor package of Millet because the resin forms

a protective body over the die (column 5, lines 30-35).

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7. Pertaining to claim 18, Millet in view of Perez teaches the manufacturing method for a semiconductor device according to claim 17 further comprising the steps of:
effecting metal plating on the exposed surfaces of the electrodes respectively; and
forming a plurality of bumps or balls on the plated surfaces of the electrodes (see FIG. 8B of Millet).

8. Pertaining to claim 21, Millet in view of Perez discloses the manufacturing method for a semiconductor device according to claim 17,
wherein the lead frame is subjected to press working so that a plurality of irregularities comprising a series of projections and hollows are formed along at least one outer frame, and
wherein each of the projections is positioned at a height substantially matching the surface of each electrode, and each of the hollows is positioned at a height which is lower than the surface of each electrode (see FIG. 2F of Millet and FIG. 6 of Perez for the three dimensional lead frame).

Objections

9. Claims 19, 20, 22, 23, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856.

The examiner can normally be reached on Monday-Friday 9:00 AM - 5:30 PM.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



W. David Coleman
Primary Examiner
Art Unit 2823

WDC